

Fig. 2A

Fig. 2B

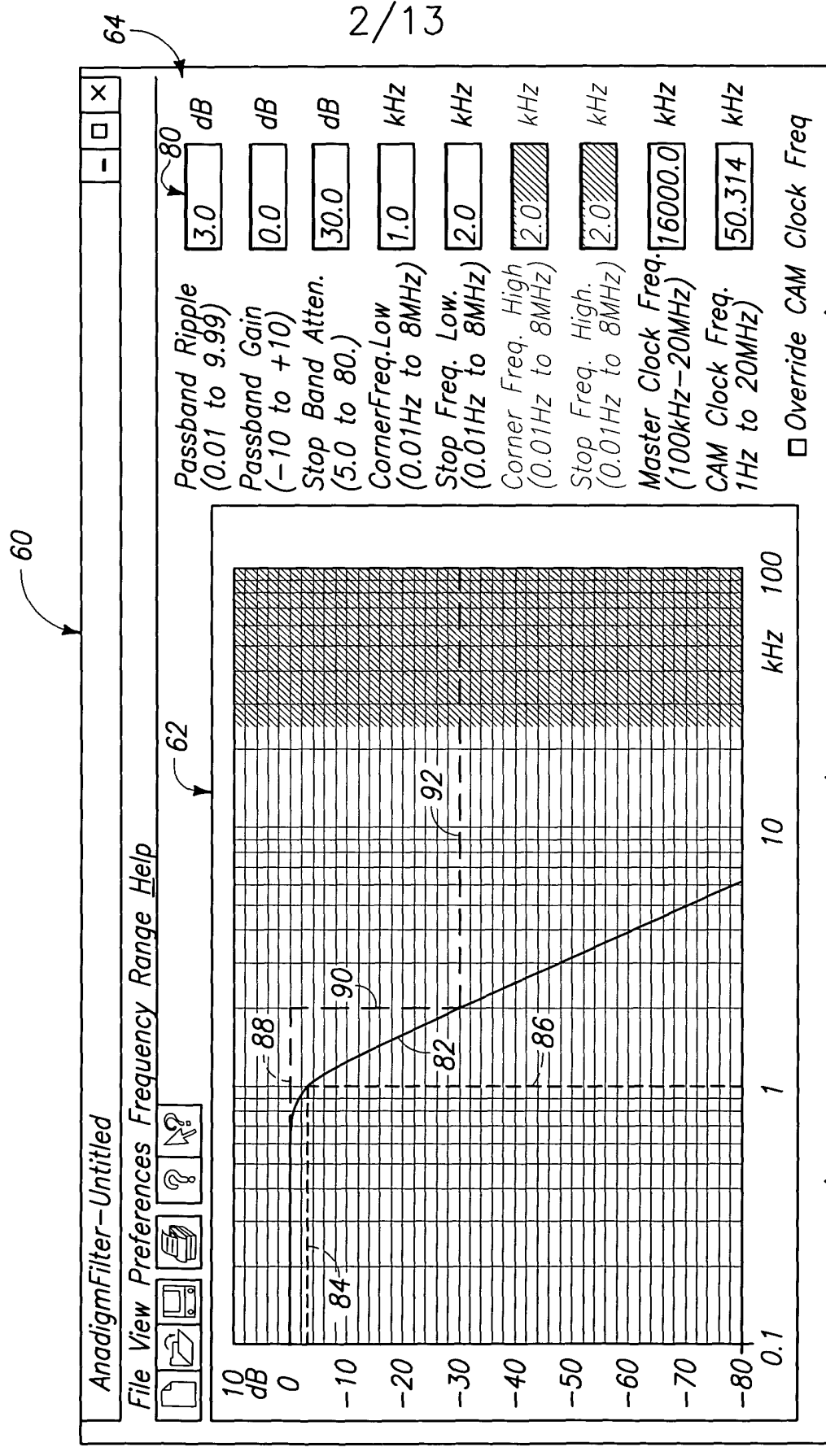
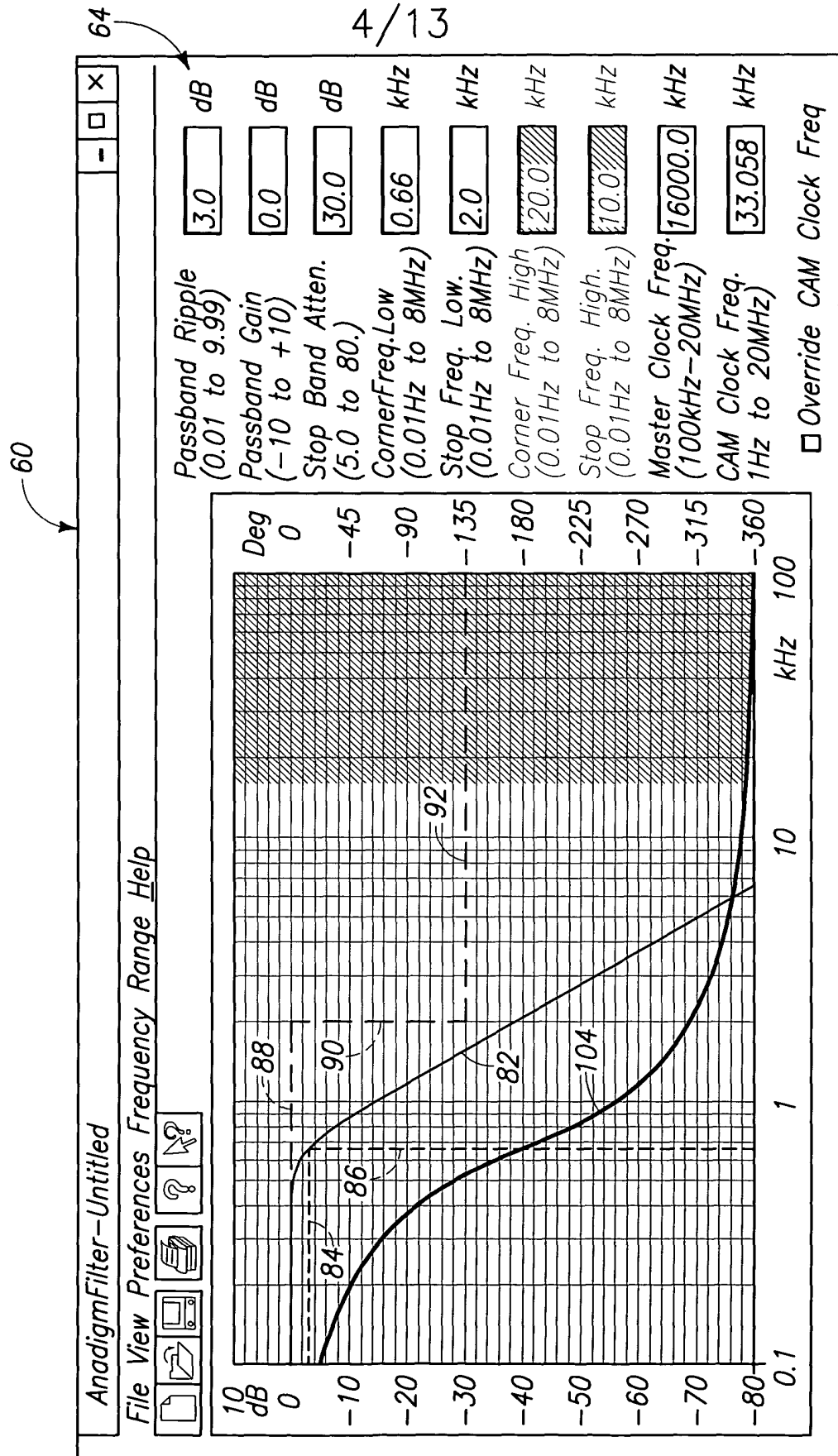


Figure 1 is a block diagram of the user interface for the "Filter Design" application. The interface is organized into several sections:

- Filter Type (66):** Contains radio buttons for "Low Pass", "High Pass", "Band Pass", and "Band Stop".
- Approximation (68):** Contains radio buttons for "Butterworth", "Chebyshev", "Inverse Chebyshev", "Elliptic", and "Bessel".
- Poles (98):** A numeric input field set to "5".
- Chips (96):** A numeric input field set to "1".
- Plot (102):** Contains checkboxes for "Magnitude dB" (checked), "Magnitude V/V", "Phase (Deg)", and "Phase (Rad)".
- Group Delay (100):** A checkbox for "Group Delay".
- Dynamic Range Opt. (72):** Contains a checkbox for "Small signal", a "Build Circuit" button (74), and a "List CAMs" button (76).
- Status Bar (78):** Displays "Frequency=1Khz", "Magnitude=-3.000dB", "0.708V/V", "Phase=-44.865Deg", "Group Delay=0.800mSec", and "NUM".

Fig. 3A

Fig. 3B



66

Filter Type

- ☒ Low Pass
- ☐ High Pass
- ☐ Band Pass
- ☐ Band Stop

68

Approximation

	Poles	Chips
<input checked="" type="radio"/> Butterworth	4	1
<input type="radio"/> Chebyshev	3	1
<input type="radio"/> Inverse Chebyshev	3	1
<input type="radio"/> Elliptic	2	1
<input type="radio"/> Bessel	8	1

70

Plot

- ☒ Magnitude dB
- ☐ Magnitude V/V
- ☒ Phase (Deg)
- ☐ Phase (Rad)
- ☐ Group Delay

72

Dynamic Range Opt.

- ☐ Small signal

74

Build Circuit

76

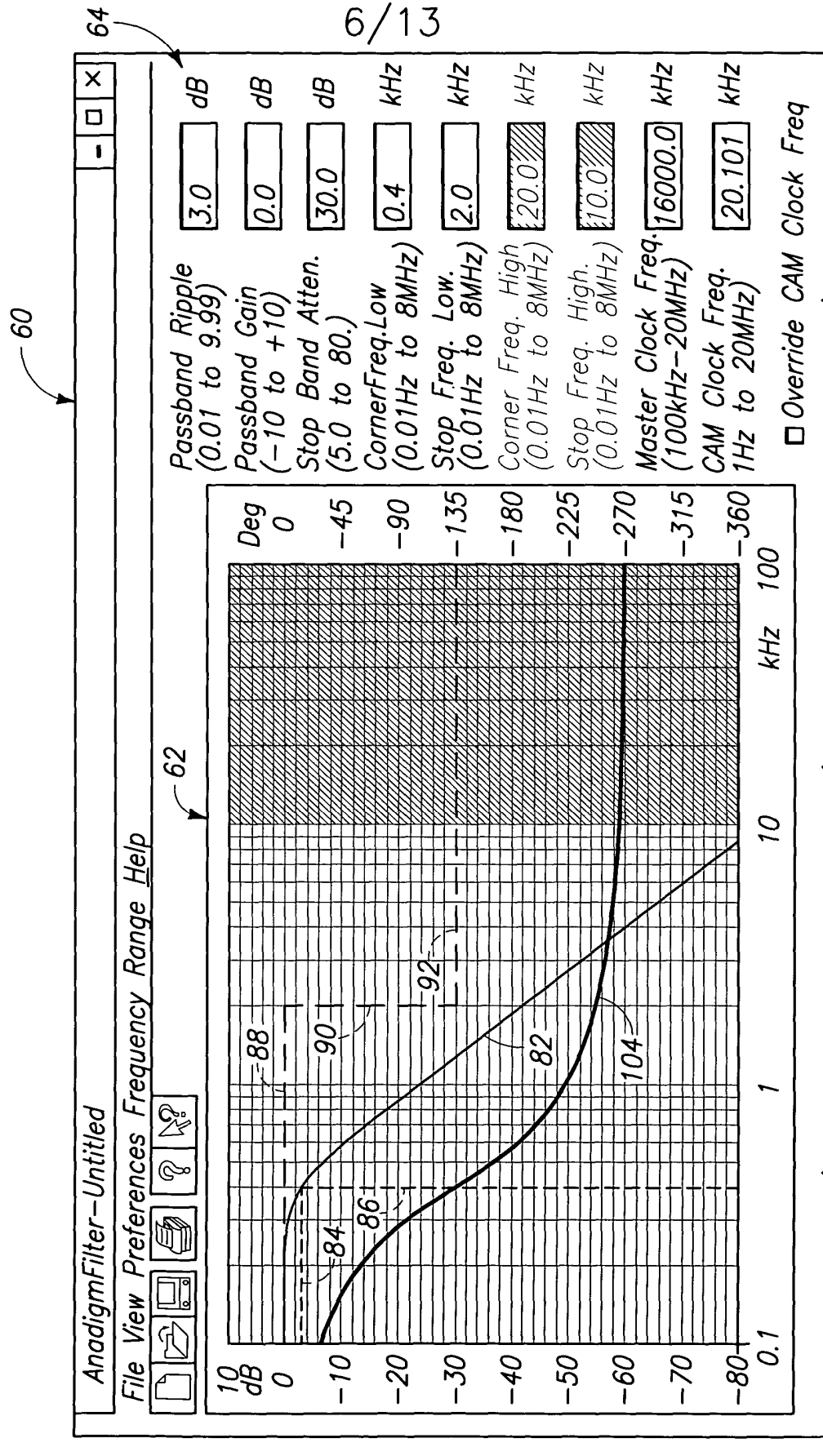
List CAMs

Frequency=0.66Khz Magnitude=-3.000dB 0.708V/V Phase=-179.874Deg Group Delay=0.898mSec NUM //

78

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Fig. 4A	
Fig. 4B	



7/13

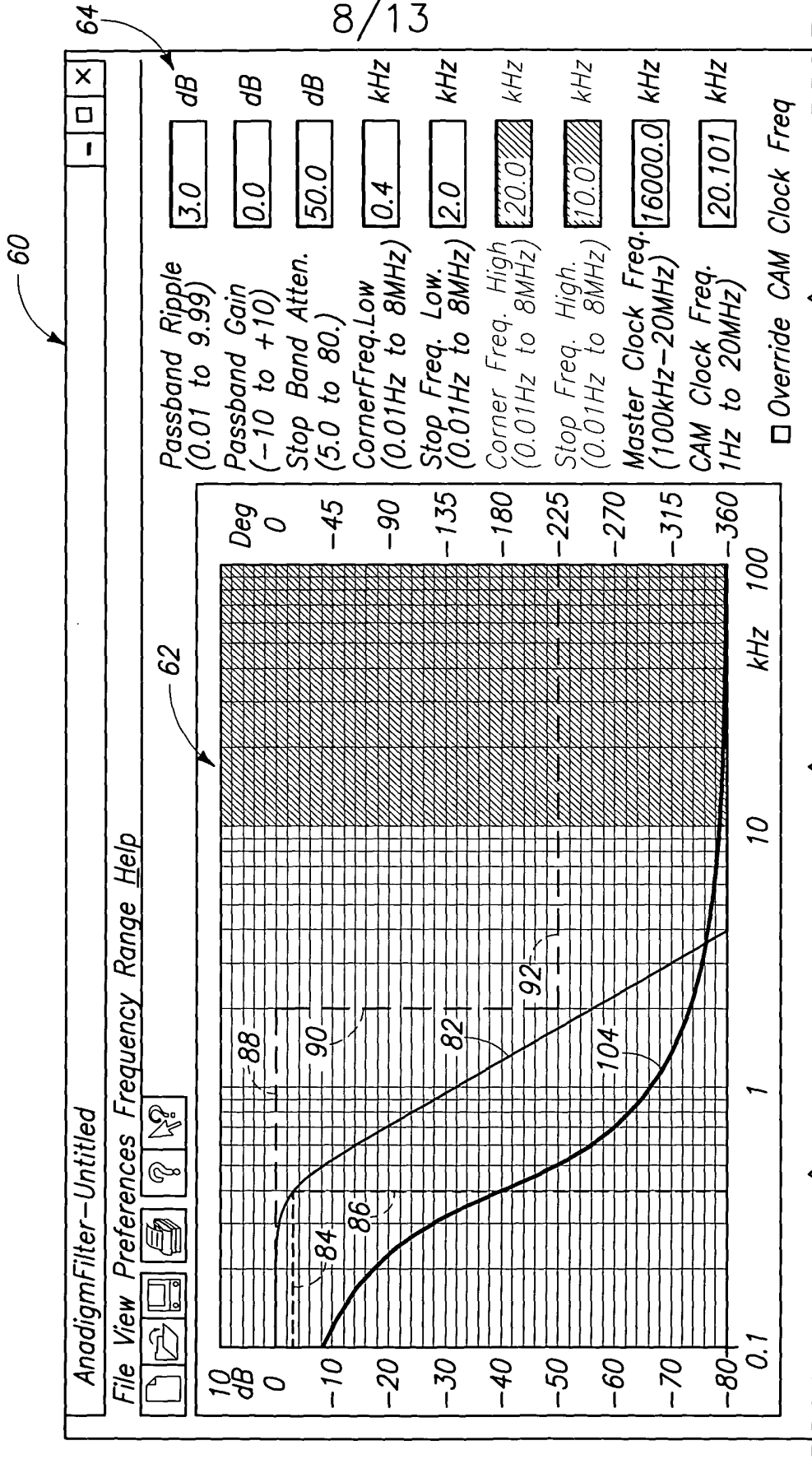
66 68 70 72 74 76 78

Filter Type	Approximation	Poles	Chips	Plot	Dynamic Range Opt.
<input checked="" type="radio"/> Low Pass	<input checked="" type="radio"/> Butterworth	3	1	<input checked="" type="checkbox"/> Magnitude dB	<input type="checkbox"/> Small signal
<input type="radio"/> High Pass	<input type="radio"/> Chebyshev	2	1	<input type="checkbox"/> Magnitude V/V	<input type="checkbox"/> Build Circuit
<input type="radio"/> Band Pass	<input type="radio"/> Inverse Chebyshev	2	1	<input checked="" type="checkbox"/> Phase (Deg)	<input type="checkbox"/> List CAMs
<input type="radio"/> Band Stop	<input type="radio"/> Elliptic	2	1	<input type="checkbox"/> Phase (Rad)	
	<input type="radio"/> Bessel	4	1	<input type="checkbox"/> Group Delay	

Frequency=0.4Khz Magnitude=-3.000dB 0.708V/V Phase=-134.887Deg Group Delay=1.002mSec NUM

78

Fig.5A
Fig.5B



Filter Type

- ☒ Low Pass
- ☐ High Pass
- ☐ Band Pass
- ☐ Band Stop

Approximation	Poles	Chips
<input checked="" type="radio"/> Butterworth	4	1
<input type="radio"/> Chebyshev	3	1
<input type="radio"/> Inverse Chebyshev	3	1
<input type="radio"/> Elliptic	3	1
<input type="radio"/> Bessel	6	1

Plot

- ☒ Magnitude dB
- ☐ Magnitude V/V
- ☒ Phase (Deg)
- ☐ Phase (Rad)
- ☐ Group Delay

Dynamic Range Opt.

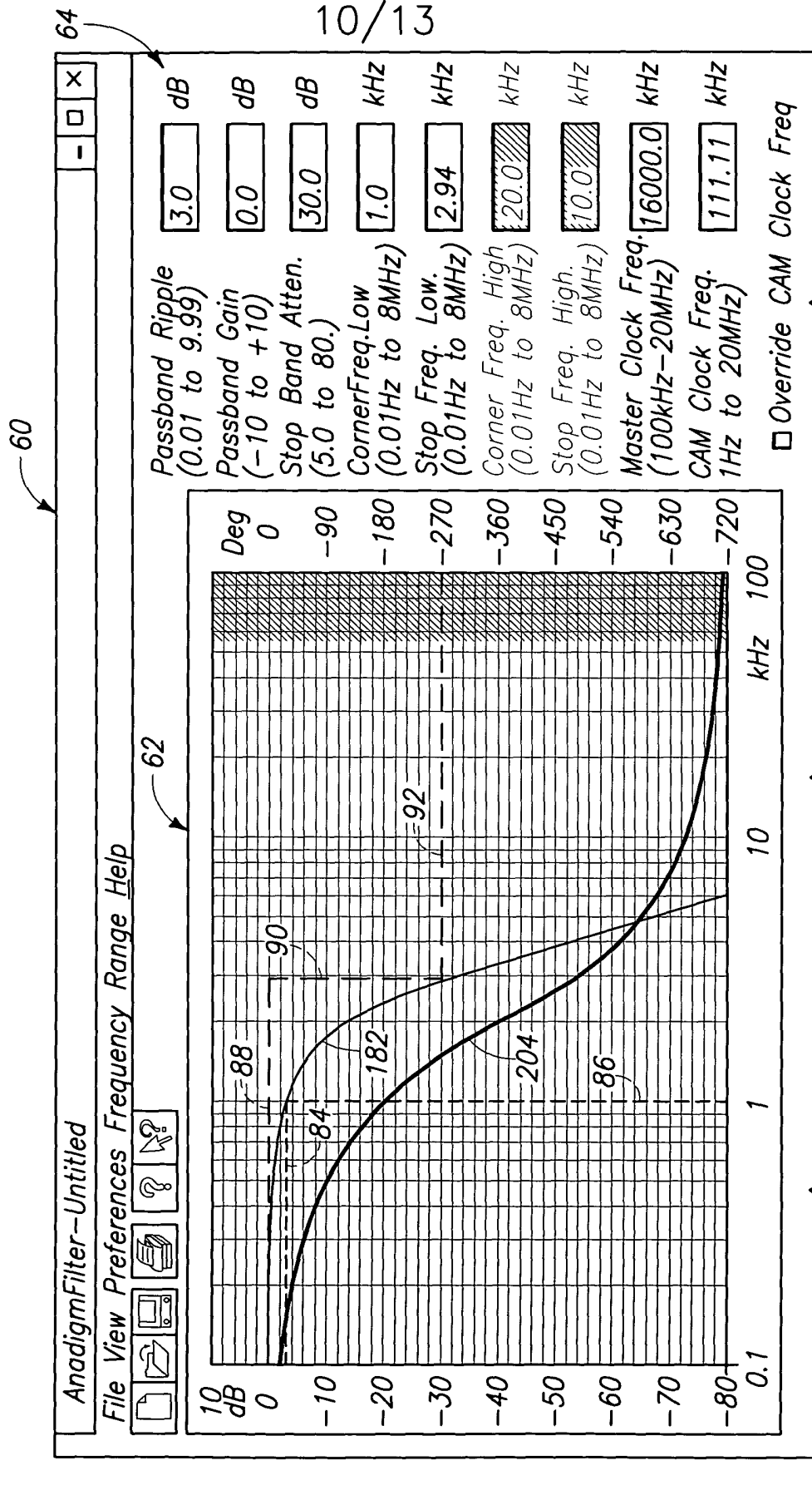
- ☐ Small signal

Build Circuit

List CAMs

Frequency=0.4Khz Magnitude=-3.000dB 0.708V/V Phase=-134.887Deg Group Delay=1.002mSec NUM //

Fig. 6A
Fig. 6B



Filter Type	Approximation	Poles	Chips	Plot	Dynamic Range Opt.
<input checked="" type="radio"/> Low Pass <input type="radio"/> High Pass <input type="radio"/> Band Pass <input checked="" type="radio"/> Band Stop	<input type="radio"/> Butterworth <input type="radio"/> Chebyshev <input type="radio"/> Inverse Chebyshev <input type="radio"/> Elliptic <input checked="" type="radio"/> Bessel	4 3 3 2 8	1 1 1 1 1	<input checked="" type="checkbox"/> Magnitude dB <input type="checkbox"/> Magnitude V/V <input checked="" type="checkbox"/> Phase (Deg) <input type="checkbox"/> Phase (Rad) <input type="checkbox"/> Group Delay	<input type="checkbox"/> Small signal <div style="border: 1px solid black; padding: 2px;">Build Circuit</div> <div style="border: 1px solid black; padding: 2px;">List CAMs</div>
Frequency=0.4Khz Magnitude=-3.000dB 0.708V/V Phase=-134.887Deg Group Delay=1.002mSec NUM //					

IE II III IB

Fig. 7A
Fig. 7B

Fig. 7A
Fig. 7B

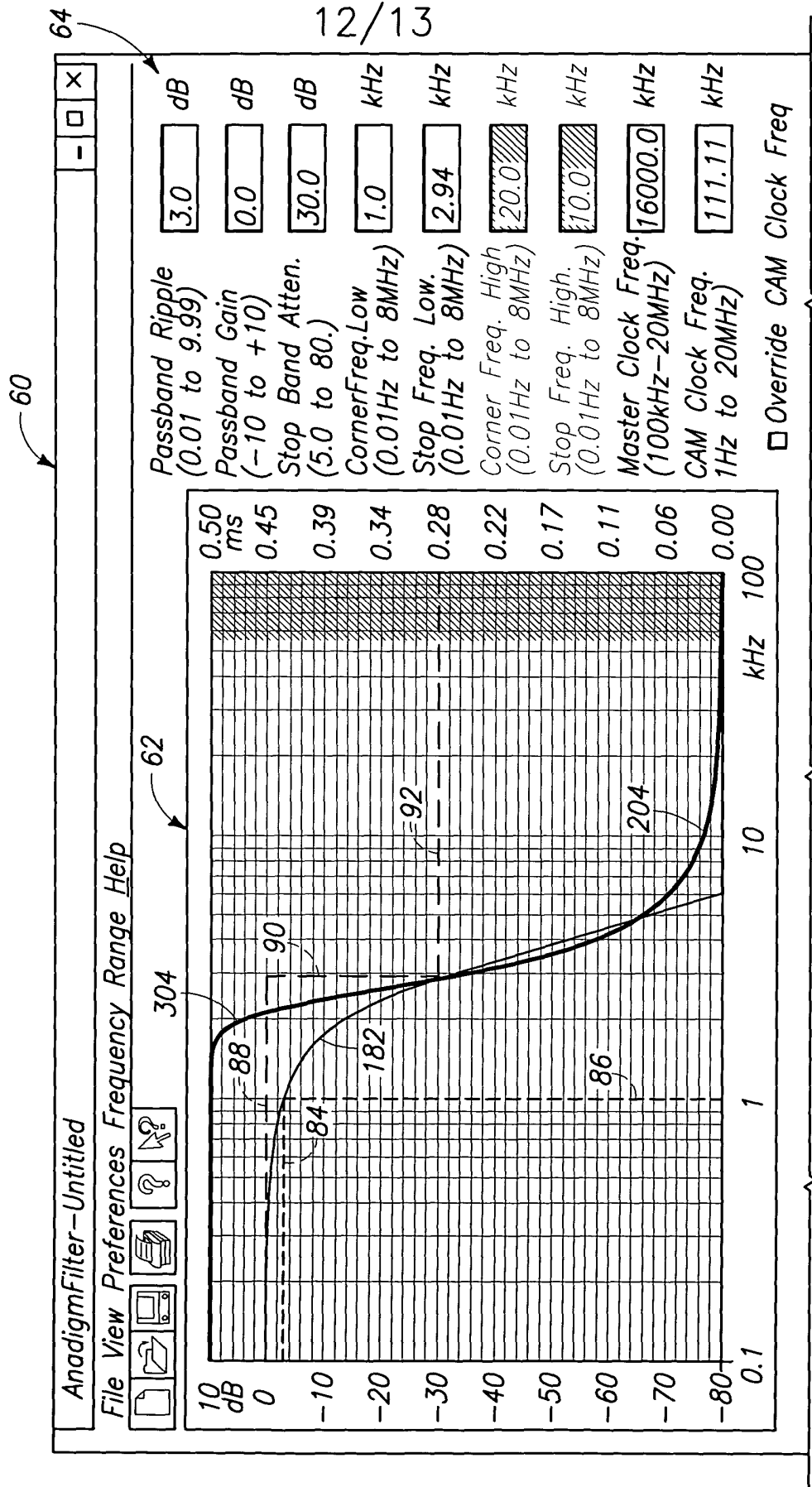


Fig. 7A
Fig. 7B

66

68

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74

76

78

Filter Type	Approximation	Poles	Chips	Plot	Dynamic Range Opt.
<input checked="" type="radio"/> Low Pass	<input type="radio"/> Butterworth	4	1	<input checked="" type="checkbox"/> Magnitude dB	<input type="checkbox"/> Small signal
<input type="radio"/> High Pass	<input type="radio"/> Chebyshev	3	1	<input type="checkbox"/> Magnitude V/V	
<input checked="" type="radio"/> Band Pass	<input type="radio"/> Inverse Chebyshev	3	1	<input type="checkbox"/> Phase (Deg)	<input type="checkbox"/> Build Circuit
<input checked="" type="radio"/> Band Stop	<input type="radio"/> Elliptic	2	1	<input type="checkbox"/> Phase (Rad)	<input type="checkbox"/> List CAMs
	<input checked="" type="radio"/> Bessel	8	1	<input checked="" type="checkbox"/> Group Delay	

Frequency=0.4Khz Magnitude=-3.000dB 0.708V/V Phase=-134.887Deg Group Delay=1.002mSec NUM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100